



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Waste Management of Illinois, Inc. - Cottonwood Hills Recycling and Disposal Facility

FROM: Linda H. Rosen, Environmental Engineer
AECAB (IL/IN)

THRU: Nathan Frank, Section Supervisor
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Waste Management of Illinois, Inc. (WMIL) - Cottonwood Hills Recycling and Disposal Facility (Cottonwood Landfill or Cottonwood)

Facility Location: 10400 Hillstown Road, Marissa, Illinois 62257

Date of Inspection: November 16, 2021

EPA Inspector(s):

1. Linda H. Rosen, Environmental Engineer
2. Daniel Heins, Environmental Scientist
3. Tess Russell, Environmental Engineer

Other Attendees:

1. Ernest (Denny) Dennison, District Engineer, WMIL
2. Brad Anderson, Gas Technician 2, WMIL
3. Mike McElvain, Area Gas Operations Supervisor, WMIL

Contact Email Address: Steven Niehoff, WMIL at sniehoff@wm.com

Purpose of Inspection: to inspect the Cottonwood Landfill in relation to Federal municipal solid waste (MSW) landfill regulations with a focus on surface emissions monitoring (SEM).

Facility Type: MSW landfill

Regulations Central to Inspection: MSW NSPS and NESHAP and WMIL's Title V Permit

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Arrival Time: 10:15 am

Departure Time: 3:30 pm

Inspection Type:

- ☐ Unannounced Inspection
- ☒ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☐ Provided Small Business Resource Information Sheet
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
- ☒ Provided CBI warning to facility

The following information was obtained verbally from WMIL representatives unless otherwise noted.

Process Description:

The site used to be an old coal strip mine. Cottonwood Landfill is permitted for 203 acres and has about 80 acres of waste in place. The facility is waiting for Illinois EPA to approve an expansion of additional cells within permitted limits. Cottonwood is expanding about 2-3 acres per year and the waste is progressing southeast. The life expectancy of the landfill is about 60 more years. Cottonwood Landfill's waste tonnage is approximately 1200 to 1500 per day. About 90 percent of the landfill is MSW and 10 percent is construction debris. The facility occasionally receives asbestos materials and has maps of their locations.

The landfill collects gas in the areas that are less than 5 years old. There are 65 wells in total. The facility operates 5 groups of pinwells. The pinwells connect to a common header and one group counts as one well. The collected gas is sent to a 3000 scfm flare that burns 1500-1600 scfm of gas.

About 10 to 12 million gallons of leachate and condensate discharge directly to the POTW each year.

The landfill final cover consists of 3 feet of low permeability clay plus 3 feet of soil. Intermediate cover is 1 foot of soil. Daily cover consists of geo-fabric tarps or soil on the active area.

Staff Interview: The two WMIL staff gas technicians, Mike and Brad, conduct monitoring of the gas wells. The consulting firm Monitoring Control & Compliance (MCC) conducts the SEM which consists of monitoring the perimeter and a small triangle at the top of the landfill. WMIL did not know if MCC monitors off the prescribed path.

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On October 28, 2021, the firm Sniffer Robotics conducted SEM at the penetrations only. Three exceedances were found. Sniffer Robotics performed conventional SEM and did not use drones (as the company is known to use). On November 15, 2021, the day before this inspection, MCC did the SEM at the landfill but did not do penetrations. WMIL did not yet have the report at the time of the inspection.

The external slopes of the landfill are 4:1 and the internal slopes are 3:1. The sloped areas, including the 4:1, have gas collection wells on them which the facility monitors monthly without using fall protection. The facility does not conduct wellhead monitoring when the slope is slippery, wet or snowy. In the Title V permit, the areas of 4:1 slope and the active area are exempt from SEM. Because of that, the landfill does not perform SEM on any of the 4:1 slopes even in fair weather. The facility stated they did not have safety concerns with us doing SEM on the 4:1 slopes during the inspection.

The Heartland Market area of Waste Management includes the States of Iowa, Nebraska, and others plus Illinois. According to Denny Dennison, the Heartland Market is driving the exclusion of the 4:1 slopes from SEM.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

EPA inspectors conducted surface emissions monitoring across the landfill in two teams. EPA detected and flagged 28 points in exceedances of the 500 parts per million (ppm) surface methane standard. Exceedances were found at penetrations and in areas of erosion, soil discoloration, leachate breakouts, exposed waste, and in soil vents. EPA documented multiple additional areas with leachate breakouts, erosion, and exposed waste.

EPA inspectors used three ThermoFisher TVA2020 instruments. Typically, Linda Rosen and Tess Russell confirmed each other's measurements, while Brad Anderson confirmed Daniel Heins's readings. For one location where WM was unable to confirm with their own instrument, they visually verified the reading from EPA.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were taken during this inspection.

RECORDS REVIEW

On November 15, 2021, WMIL electronically submitted the following documents to EPA:

- January 6, 2021 NSPS Semi-Annual Report for period July 1, 2020 to December 31, 2020 (Bates Nos. WMCH00001-WMCH00026)

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- July 6, 2021 NSPS Semi-Annual Report for period January 1, 2021 to June 30, 2021 and Federal Plan Annual Report for period June 21, 2021 to June 30, 2021 (Bates Nos. WMCH00027-WMCH00065)
- August 25, 2020 Results of 2020 Q3 Surface Emissions Monitoring (Bates Nos. WMCH00066-WMCH00078)
- December 18, 2020 Results of 2020 Q4 Surface Emissions Monitoring (Bates Nos. WMCH00079-WMCH00091)
- March 12, 2021 2021 1st Quarter SEM Event (Bates Nos. WMCH00092-WMCH00106)
- May 17, 2021 2021 2nd Quarter SEM Event (Bates Nos. WMCH00107-WMCH00117)
- May 28, 2021 Existing GCCS System, WMCH00118
- August 8, 2021 Hurst-Rosche cover in place map (Bates No. WMCH00119)
- Monthly Asbestos Containing Waste Material Cover Integrity Inspections and Monthly NSPS Cover Integrity Inspections for year 2020 (Bates No. WMCH00120)
- Monthly Asbestos Containing Waste Material Cover Integrity Inspections and Monthly NSPS Cover Integrity Inspections for period January 2020 to October 2020 (Bates No. WMCH00121)
- Monthly Cover Integrity Inspection Form for February 2021 (Bates No. WMCH00122)
- Monthly Cover Integrity Inspection Form for March 2021 (Bates Nos. WMCH00123-WMCH00124)
- Monthly Cover Integrity Inspection Form for April 2021 (Bates Nos. WMCH00125-WMCH00126)
- Monthly Cover Integrity Inspection Form for May 2021 (Bates Nos. WMCH00127-WMCH00128)
- Monthly Cover Integrity Inspection Form for June 2021 (Bates Nos. WMCH00129-WMCH00131)
- Monthly Cover Integrity Inspection Form for July 2021 (Bates Nos. WMCH00132-WMCH00134)
- Monthly Cover Integrity Inspection Form for August 2021 (Bates No. WMCH00135)
- Monthly Cover Integrity Inspection Form for September 2021 (Bates Nos. WMCH00136-WMCH00138)
- Monthly Cover Integrity Inspection Form for October 2021 (Bates Nos. WMCH00139-WMCH00141)
- Liquid Levels September 2021 (Bates No. WMCH00142)

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Documents Requested and Obtained After the Inspection:

- 3rd quarter 2021 SEM report (Bates Nos. WMCH00143-WMCH00152) electronically submitted to EPA on November 16, 2021

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- Corrective actions performed in response to EPA's 11/16/2021 SEM event (Bates No. WMCH00153), electronically submitted to EPA on January 20, 2022.

Concerns:

- Multiple locations with leachate breakout;
- 28 SEM Exceedances found. Denny said that they monitor a straight line but we did not. We emphasized that we monitored at locations with visual indicators of potentially elevated emissions, which they are required to do as well;
- Cottonwood will address the exceedances with corrective actions. Corrective actions could include bentonite, foam around wells, and/or a smooth HPDE liner under additional dirt;
- We are concerned about the 4:1 slope exclusion. Denny said that this is the position of the Heartland Market Area of WM; and
- L102 had a large area of exceedance, much of it above the lower explosive limit for methane.

DIGITAL SIGNATURES

Report Author: Linda H. Rosen

Section Supervisor: _____

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APPENDICES AND ATTACHMENTS

1. Appendix A: Digital Image Log
2. Appendix B: Field Measurement Data

Facility Name: Cottonwood Hills Recycling and Disposal Facility

Facility Location: 10400 Hillstown Road, Marissa, Illinois

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APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Daniel Heins	2. Archival Record Location: R5 Electronic Record Center-ECAD>AECAB Library>Enf_WM-CottonwoodHills_IL_14>2021-11-16 Inspection SEM>DanPics
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Image	File Name	Date and Time	Description
1	20211116_112236.jpg	2021:11:16 11:22:36	Large eroded ditch
2	20211116_120549.jpg	2021:11:16 12:05:49	D1, dirt pile with soil vent by solar pump
3	20211116_122152.jpg	2021:11:16 12:21:52	D2, well casing 42, visible cracks and discoloration in soil around case
4	20211116_123209.jpg	2021:11:16 12:32:09	D3, W43 bare dirt
5	20211116_132043.jpg	2021:11:16 13:20:43	D4, distressed vegetation/erosion
6	20211116_133124.jpg	2021:11:16 13:31:24	D5, Well 13R, cracks and visible dirt discoloration (no vegetation)
7	20211116_133526.jpg	2021:11:16 13:35:26	D6, Well 100, soil discoloration and bare dirt/distressed vegetation
8	20211116_133947.jpg	2021:11:16 13:39:47	D7, Well 87, erosion, bare earth, soil cracks/discoloration
9	20211116_134121.jpg	2021:11:16 13:41:21	Leachate breakout and exposed waste
10	20211116_134507.jpg	2021:11:16 13:45:07	D8, PW1-PW4 complex, soil discoloration and erosion with exposed waste
11	20211116_135303.jpg	2021:11:16 13:53:03	D9, Well 17R
12	20211116_135913.jpg	2021:11:16 13:59:13	D10, MW-91, some bare Earth / potentially distressed vegetation
13	20211116_142802.jpg	2021:11:16 14:28:02	D11, soil vent on road
14	20211116_143131.jpg	2021:11:16 14:31:31	D12, Condensate Sump 2, bare earth / distressed vegetation around sump
15	20211116_143135.jpg	2021:11:16 14:31:35	D13, L102 leachate riser
16	20211116_143603.jpg	2021:11:16 14:36:03	D14, leachate breakout
17	20211116_144007.jpg	2021:11:16 14:40:07	D14, leachate breakout
18	20211116_145138.jpg	2021:11:16 14:51:38	D15, abandoned lateral, exposed waste and bare earth
19	20211116_145515.jpg	2021:11:16 14:55:15	D15, abandoned lateral, exposed waste and bare earth
20	20211116_140407.jpg	2021:11:16 14:04:07	Leachate breakout by well 89
21	20211116_141529.jpg	2021:11:16 14:15:29	Leachate breakout below well 88
22	20211116_142027.jpg	2021:11:16 14:20:27	D16, erosion rill / bare earth with exposed waste
23	20211116_142349.jpg	2021:11:16 14:23:49	Area of with numerous erosion rills/bare earth at top of west slope

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1. Inspector Name: Tess Russell	2. Archival Record Location: R5 Electronic Record Center-ECAD>AECAB Library>Enf_WM-CottonwoodHills_IL_14>2021-11-16 Inspection SEM>TessPics
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Image	File Name	Date and Time	Description
1	PB160001.JPG	2021:11:16 11:50:32	B1, eroded area and exposed trash
2	PB160002.JPG	2021:11:16 12:14:55	B2, interior slope, expansive eroded area
3	PB160003.JPG	2021:11:16 12:31:11	B3, Well 85R and surrounding area with no vegetation
4	PB160004.JPG	2021:11:16 12:39:22	B4, Well 22 or 22R
5	PB160005.JPG	2021:11:16 13:21:55	B5, east of Well 79R, distressed vegetation
6	PB160006.JPG	2021:11:16 13:25:06	B6, Well 79R
7	PB160007.JPG	2021:11:16 13:36:08	B7, Well 14R
8	PB160008.JPG	2021:11:16 13:41:31	B8, Well 86R
9	PB160009.JPG	2021:11:16 13:55:12	B9, Well 20R1 and surrounding area with exposed waste
10	PB160010.JPG	2021:11:16 14:03:37	B10, Well 10R
11	PB160011.JPG	2021:11:16 14:07:51	B11, between Well 20R1 and 10R, eroded area and distressed vegetation
12	PB160012.JPG	2021:11:16 14:41:26	B12, Well 93
13	PB160013.JPG	2021:11:16 15:08:24	4:1 slope, excluded from SEM

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APPENDIX B: FIELD MEASUREMENT DATA

Off-Site Pre-Inspection Calibration and Bump Checks at Casey's

Each of the three TVA's (designated A, B, and C) was calibrated at 0 air, 500 ppm, 2000 ppm and 10,000 ppm methane in air.

Gases used were as follows:

Concentration (ppm methane in air)	Lot	Expiration Date
0	1501788	June 2026
500	304-4021 10297-1	May 2025
2,000	1434290	June 2026
10,000	1440891	June 2026

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Bump Check Readings

TVA	Reading with 500 ppm Gas (ppm)	Reading with 2000 ppm Gas (ppm)	Reading with 10,000 ppm Gas (%)
A56576 (TVA C)	501	1982	1.02
A56584 (TVA B)	498	1997	1.00
C09562 (TVA A)	489	1925	1.01

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1. Inspector Name: Tess Russell (TR) and Linda Rosen (LR)	2. Archival Record Location: R5 Electronic Record Center-ECAD>AECAB Library>Enf_WM-CottonwoodHills_IL_14>2021-11-16 Inspection SEM>
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Flag #	Time	Location & Notes	Latitude	Longitude	TVA A User	TVA A Reading	TVA C User	TVA C Reading (ppm)
B1	11:50	Eroded area all around with visible trash; 10 ft radius with other confirmed hits by both TVAs; east of well 81	38.25815	-89.7791	LR	597	TR	817
B2	12:14	North of Well 82, 10 ft radius; "interior slope" - whole eroded area with hits	38.25722	-89.7781	LR	562	TR	640
B3	12:31	Includes Well 85R with a hit, and the surrounding 10 ft diameter	38.25675	-89.7778	LR	590	TR	617
B4	12:39	Well 22 or 22R (tech unsure)	38.25645	-89.7779	WMIL	937*	TR	1800
B5	13:21	East of Well 79R	38.25682	-89.7784	LR	513	TR	717
B6	13:25	Well 79R	38.2567	-89.7785	LR	901	TR	3500
B7	13:36	Well 14R	38.2564	-89.7793	LR	650	TR	650
B8	13:41	Well 86R, south of Well 14R	38.25602	-89.7791	LR	532	TR	630
B9	13:55	Well 20R1, area around with exposed trash with hits; 10 ft diameter area with hits	38.25694	-89.7792	LR	1280	TR	1800
B10	14:03	Well 10R	38.25762	-89.7793	LR	1054	TR	859
B11	14:07	Between Well 20R1 and 10R, to the east; eroded area	38.25726	-89.779	LR	534	TR	600
B12	14:41	Well 93	38.25738	-89.7799	LR	1048	TR	1300

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1. Inspector Name: Daniel Heins (DJH)	2. Archival Record Location: R5 Electronic Record Center-ECAD>AECAB Library>Enf_WM-CottonwoodHills_IL_14>2021-11-16 Inspection SEM>DanPics
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Flag #	Time	Location & Notes	Latitude	Longitude	User TVA B	TVA B Reading (ppm)	WMIL TVA Check Reading (ppm)
D1	12:05	Near 21R in dirt pile, soil vent	38.257	-89.7773	DJH	1209	1000
D2	12:21	Well casing #42 and area (pin well, dirt vents)	38.25566	-89.7765	DJH	1500	1800
D3		W43 at base and area	38.25587	-89.777	DJH	900	670
D4	13:20	East of Well 13R in erosion	38.25613	-89.7784	DJH	1070	787
D5	13:30	Well 13R, soil discoloration. Very windy, WM visual on EPA reading	38.2561	-89.7787	DJH	720	496
D6	13:35	Well 100, area around	38.2559	-89.7789	DJH	1030	935
D7	13:29	Well 87, base and around. Erosion/soil discoloration	38.25566	-89.7791	DJH	1250	>600
D8	13:45	PW1-PW4 - soil discoloration and erosion	38.25553	-89.7792	DJH	1050	627
D9	13:53	Well 17R	38.25522	-89.7795	DJH	1200	5600
D10		MW-91 base and around	38.25465	-89.7799	DJH	1230	5395
D11		soil vent near MW92, many readings >200 along road	38.25424	-89.7801	DJH	1210	628
D12	14:15	Condensate Sump #2	38.25411	-89.781	DJH	720	535
D13	14:20	L102 leachate riser directly out [of the] cap, elevated readings throughout complex	38.25439	-89.7812	DJH	>1%	>10%

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D14	14:28	Leachate breakout above L102, some exposed waste	38.25465	-89.7807	DJH	2000	>500
D15	14:31	by abandoned lateral with lack of vegetation and exposed waste	38.25473	-89.7803	DJH	1027	580
D16	14:51	erosion rill, lots of rills top of that slope	38.25588	-89.7797	DJH	700	1100

Post Inspection Bump Checks

Instrument	Reading (ppm)
A56575 (TVA C)	460
A56584 (TVA B)	604
C09562 (TVA A)	505